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StorageWorks Tape Devices
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D1GITAL Systems and Options Catalog

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Flexible/Optical Media Specifications Chart

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DIGITAL TZ89 High Capacity/High Performance DLT Tape Drive

The DIGITAL TZ89 digital linear tape (DLT) drive extends DIGITAL's DLT family to higher levels of capacity, with up to 70 GB of capacity per cartridge -- 75 percent more than DIGITAL's TZ88 or DLT 4000 drives. The TZ89 drive provides high-end workstations as well as network servers and systems with enhanced unattended backup/restore and archival capabilities. These capabilities, combined with the high reliability and industry-leading data integrity of the DLT medium, make the TZ89 a true heavy-duty tape drive for Hierarchical Storage Management (HSM), image/multimedia storage, archiving, near-online storage, and unattended backup applications.

The TZ89 drive uses Compac/DLTtapeIV media and is Read and Write compatible with Compac/DLTtapeIII and Compac/DLTtapeIIIXT media, providing investment protection. The TZ89 design includes a quad-channel read/write head, Lempel-Ziv (DLZ) high-efficiency data compression, and tape mark directory to maximize data throughput and minimize data access time.

The TZ89 is a full-height, 5.25-inch drive capable of storing up to 35 GB native (70 GB at 2:1 compression) of data when using Compac/DLTtape IV media. It is available as a tabletop device or can be mounted in a StorageWorks cabinet. The TZ89 provides full data interchange capabilities to the Tx85, Tx86, and Tx87 subsystems. It is not compatible with older tape formats, such as the TZ30, TK50, and TK70 products.

Features

- 35/70 GB 5.25-inch full-height, Fast Wide Single-ended SCSI-2 DLT drive
- Industrial-strength tape drive for hierarchical storage management (HSM), image/multimedia storage, archiving, near-online storage, and unattended backup applications
- Available in both tabletop and DIGITAL StorageWorks cabinet configurations
- Up to 75 percent more data storage than the TZ88 or DLT 4000 drives
- Provides more than 3 times the data storage and retrieval performance of the TZ88 or DLT 4000 drives
- Enhances unattended backup/restore and archiving for high-end workstations and network servers

Operating System Support

- OpenVMS V6.2-1H3, V7.1
- DIGITAL UNIX V4.0a
- Windows NT V4.0 with Service Pack 2
- IBM AIX V3.2, V4.1x
- Sun Solaris V5.4, V5.5
- Novell NetWare V3.12, V4.1[1]

Hardware Support

- AlphaStation 255, 400, 500, 600
- AlphaServer 1000, 1000A, 2000, 2100, 2100A, 4000, 4100, 8200, 8400
- VAXstation 4000-96
- MicroVAX 3100-40/85/88/96/98
- VAX 4000-108, 7000-800 [2]

1 Novell NetWare native backup is not supported. Third party backup software is required.
2 Tape drives are supported on VAX7000-800 systems via HSD, HSJ, and HSZ controllers only..

Controllers, Adapters, Converters Supported

- HSJ30/40/50, HSD30/50, HSZ40/50 - Controllers [1]
- KZPAA, KZPSA, KZPDA, KFTIA - Adapters
- DWZZA, DWZZB - Signal converters[2]

1 These controllers use the DIGITAL StorageWorks Hierarchical Storage Operating Firmware (HSOF V3.1/V5.1) when used with DIGITAL OpenVMS systems. Consult the HSOF SPD for details of device/controller support.
2 DWZZx-xx adapter is required to attach the drive to each differential SCSI controller or adapter.

Supported Third-Party Applications

- Cheyenne ARCserve for Windows NT, NetWare
- Seagate Backup Exec for Windows NT, NetWare
- Seagate Palindrome Storage Manager for Windows NT

DIGITAL TZ89 High Capacity/High Performance DLT Tape Drive *(continued)*

Ordering Information

NOTE: DS-TZ89N-xx drives will run in slow/narrow mode only when connected to the VAXstation 4000, MicroVAX 3100, and VAX 4000 systems.

DS-TZ89N-VW 35/70 GB TZ89 Fast Wide Single-ended SCSI-2 DLT Drive (System Building Block)

DS-TZ89N-TA * 35/70 GB TZ89 Fast Wide Single-ended SCSI-2 DLT Drive (Tabletop)

* DS-TZ89N-TA is configured with a 68-pin high-density female connector. Order a cable with a 68-pin high-density male connector and the appropriate connector to match system controller/adapter.

Specifications

Physical Characteristics	
Height	4.87 inches (124 millimeters)
Width	9.0 inches (229 millimeters)
Depth	12.75 inches (325 millimeters)
Weight	15 pounds (663 kilograms)
Power consumption	
Typical	37 watts
Line voltage	100 to 240 VAC single-phase
Line frequency	50 to 60 Hz
Temperature	
Operating	50F to 104F (10C to 40C)
Non-operating	-40F to 151F (-40C to 66C)
Humidity	
Operating	20 percent to 80 percent (non-condensing)
Non-operating	10 percent to 95 percent (non-condensing)
Altitude	40,000 feet maximum
Performance	
Formatted Capacity	
Native	35 GB
Compressed	70 GB
Sustained Transfer Rate -- Native *	5.0 MB per second
Reliability	
Mean Time Between Failure (MTBF)	200,000 hours
Head life	30,000 tape motion hours (continuous operation)
Interface	Fast/Wide, Single-ended SCSI-2 with 68-pin high-density female connector
Certification	
Safety	UL1950, CSA C22.2 #220, TUV EN60950
Emissions †	FCC Class A and B, EN55022/B and EN55082/B, CISPR 22/A and B, VCCi/Class 1 and 2, CEmark Class A and B
Media	Read/Write compatibility with Compac/DLTtapeIII, Compac/DLTtapeIIIXT, and Compac/DLTtapeIV

* Performance specifications refer to the tape drive only. Actual system performance is a function of the system platform, operating system, and configuration.

† DS-TZ89N-VW meets FCC and CE Class A certification only.

DIGITAL TL89x Automated DLT Tape Libraries

DIGITAL has added three new members to its TL8xx family of DIGITAL Linear Tape (DLT) automated tape libraries.

- TL894 automated tape library
  - Provides up to 3.36 TB of data storage (compressed) with four TZ89 drives
- TL893 automated tape library
  - Provides up to 18.48 TB of data storage (compressed) with three TZ89 drives
- TL896 automated tape library
  - Provides up to 12.32 TB of data storage (compressed) with six TZ89 drives

Both the TL893 and TL896 are data center cabinets with a footprint of less than one square meter. They are targeted at the high-performance/high-capacity enterprise systems market. The fully automated TL89x storage libraries also include robotic hardware and firmware, and Media Robot Utility (MRU) software. The TL893 and TL896 data center libraries are configurable in up to five interconnected libraries accessible as a single SCSI logical unit.

All three TL89x libraries use high-performance TZ89 tape drives for unsurpassed data integrity and high capacity (up to 70 GB compressed per cartridge). The TZ89 drives provide support for the following three media types: DLT/CompacTapeIII, DLT/CompacTapeIIIXT, and DLT/CompacTapeIV.

These products are ideal for data applications for DIGITAL systems, platforms, clusters, and networks. All three TL89X libraries are supported on DIGITAL Alpha systems running DIGITAL UNIX, OpenVMS, or Microsoft Windows NT operating systems and VAX systems running OpenVMS.

Features

- Provide low-cost, high-capacity, high-performance, and reliable automated mass storage for departmental and enterprise data management applications
- Integrate automated backup, archiving, and hierarchical storage management for departmental operations, while keeping pace with larger-scale enterprise-wide mass storage schemes
- Based on industry-leading DIGITAL Linear Tape (DLT) technology -- an ANSI standard

Hardware Support†

- Controllers
  - HSJ30/40, HSD30 with HSOF V3.1
  - HSJ50, HSD50, HSZ50 with HSOF V5.1
- Adapters
  - KZPSA, KZPDA, KFTIA, P2SE
- SCSI converters *
  - DWZZB
- Supported OpenVMS applications
  - Storage Library System for OpenVMS (SLS) V2.8a
  - Archive/Backup System for OpenVMS (ABS) V2.1
  - Hierarchical Storage Management for OpenVMS (VHSM) V2.1
  - Media Robot Utility (MRU) V1.1
- Supported DIGITAL UNIX applications
  - DIGITAL Networker Save and Restore (NSR) V4.2c
  - Media Robot Utility (MRU) V1.1
- Supported Microsoft Windows NT applications
  - DIGITAL NetWorker for Windows NT V4.3

* Each TL89x tape library has a differential SCSI-2 interface with a 68-pin high density connector. A DWZZX-xx and appropriate 68-pin high density external SCSI-2 cable are required to attach the tape library to a single-ended SCSI controller or adapter.

DIGITAL TL89x Automated DLT Tape Libraries *(continued)*

Software Support

- VAX Systems: OpenVMS V6.2-1H3 and OpenVMS V7.1
- AlphaStation 500,600: OpenVMS V6.2-1H3, OpenVMS V7.1, and DIGITAL UNIX V4.0x
- AlphaServer 1000, 1000A, 2000, 2100, 2100A, 4000, 4100, 8200, 8400: OpenVMS V6.2-1H3, OpenVMS V7.1, and DIGITAL UNIX V4.0x

VAX system support is provided via HSOF, HSD, HSJ, or HSZ controllers and DIGITAL applications. For a complete list of supported VAX systems, consult the HSOF and DIGITAL application software SPDs

AlphaStation and AlphaServer support is provided via SCSI adapters and DIGITAL applications. For a complete list of supported Alpha workstations and servers, consult the DIGITAL application software SPDs

Ordering Information

	TL894, TL893 and TL896 Automated Tape Libraries
DS-TL894-BA	52 Cartridge Tape Library with 4 TZ89 Drives
DS-TL893-BA	264 Cartridge Tape Library with 3 TZ89 Drives
DS-TL893-AC	264 Cartridge Tape Library Add-On
DS-TL896-BA	176 Cartridge Tape Library with 6 TZ89 Drives
DS-TL896-AC	176 Cartridge Tape Library Add-On
	TL894, TL893 and TL896 Upgrade Kits
DS-TL894-UA	TL810/812-to-TL894 Upgrade Kit
DS-TL893-UA	TL820/822-to-TL893 Upgrade Kit
DS-TL896-UA	TL826-to-TL896 Upgrade Kit
DS-TL89x-UB	Expansion to Standalone TL89x Library Kit

Specifications

DIGITAL TL894	
Capacity	
- Cartridges	48 slots for data storage, 4 for cartridge input/output
- Data	1.68 TB (uncompressed)
- Number of drives	4
Performance [1]	
- Sustained transfer rate	5.0 MB per second per drive (uncompressed)
- Cartridge swap time (avg.)	18 seconds
Interface	Fast Differential SCSI-2 with 68-pin high-density female connectors
Environmental	
- Temperature	15° to 32°C (59° to 90°F) operating, -40° to 66°C(-40° to 151°F) non-operating
- Humidity	20% to 80% non-condensing operating, 95% non-operating
- Altitude	2.0 km (6562 ft) operating, 3.658 km (12,000 ft) non-operating
Size	112 cm (44 inches) high, 54.6 cm (21.5 inches) wide, 79.1 cm (31.12 inches) deep
Weight	170 kg (380 lb) with drives and cartridges
Power	120/230 VAC 50/60 Hz single phase switchable 90 to 132V or 180 to 264V, autoranging, at 47 to 63 Hz, IEC 320 male connector
Agency approvals	FCC Class A, UL1950, CSA950, TUV, CE Class A
MTBF	170,000 hours
MSBF [2]	1,000,000 cartridge exchange cycles
MTTR	less than 30 minutes

1 Note that performance statistics (sustained transfer rate) reflect only the drive capabilities; actual drive and library performance is a function of the system configuration and its application.

2 Mean swaps between failures

DIGITAL TL89x Automated DLT Tape Libraries *(continued)*

DIGITAL TL893 and TL896	
Capacity	
- Cartridges slots	264 slots (TL893) 176 slots (TL896)
- Data storage	9.24 TB (uncompressed) (TL893) 6.16 TB (uncompressed) (TL896)
- Number of drives	3 (TL893) 6 (TL896)
Performance [1]	
- Sustained transfer rate	5.0 MB per second per drive (uncompressed)
- Cartridge swap time (avg.)	15 seconds
Interface	Fast Differential SCSI-2 with 68-pin high density female connectors
Environmental	
- Temperature	15° to 32°C (59 to 90°F) operating, -40° to 66°C (-40° to 151°F) non-operating
- Humidity	20% to 80% non-condensing operating, 5% to 95% non-operating
- Altitude	2.4 km (8,000 ft) operating, 4.9 km (16,000 ft) non-operating
Size	200.66 cm (79 inches) high, 71.76 cm (28.25) inches wide, 119.38 cm (47 inches) deep
Weight	420 kg (920 lb) with drives and cartridges
Power	120/230 VAC 50/60 Hz single phase switchable 90 to 132 V or 180 to 264 V, autoranging, at 47 to 63 Hz, IEC 320 male connector
Agency approvals	FCC Class A, UL1950, CSA950, TUV, CE Class A
MTBF	80,000 hours
MSBF [2]	500,000 cartridge exchange cycles
MTTR	less than 30 minutes

1 Note that performance statistics (sustained transfer rate) reflect only the drive capabilities; actual drive and library performance is a function of the system configuration and its application.
2 Mean swaps between failures

StorageWorks TZ88 DLT Cartridge Tape Drives

The DIGITAL Linear Tape Drive (DLT) family cartridge tape drives are industry-leading 5.25-inch streaming linear recording tape devices, designed for systems requiring high performance, high data integrity, and unattended backup. The performance and capacity of the DLT cartridge tape drive subsystem is unrivaled. With a sustained transfer rate of up to 3.0 Mbytes per second and up to 40 Gbytes of formatted capacity (2 to 1 compression), the TZ88 tape drives can complete full backups in under an hour. A 2 MB adaptive cache matches the speed of the tape subsystem to system performance, minimizing repositioning delays, and a dual-channel read/write head design provides a high data transfer rate.

Extensive error detection and correction make the data integrity of the DLT cartridge tape subsystem comparable to that of magnetic disks. Other advanced data integrity features include a custom 64-bit CRC on each 4 Kbytes of data on media; a powerful custom Reed Solomon ECC and parity checking on cache buffer. These features combine to produce undetected errors of less than 1 in 10 (27) bits and unrecovered read errors of less than 1 in 10 (17) bits.

Extensive diagnostic and troubleshooting features include serial EIA-422 ports on the subsystem and controllers for off-line troubleshooting and POST (power on self-test) error reporting, embedded diagnostic and self-test software, and LEDs for indication of operating and fault information.

The TZ88 is read/write compatible with the TZ85, TZ86, TZ87 and TZ88. The TZ88 uses DLT/CompacTape IV media and is read/write compatible with, DLT/CompacTape III, and DLT/CompacTape IIIXT media.

Features

- SCSI interface (TZ devices)
- Extensive embedded diagnostic/self-test software
- Up to 3.0 Mbytes/sec sustained transfer rate (compressed 2:1)
- Up to 40 Gbytes capacity per cartridge (compressed 2:1)
- Tabletop enclosure or 5.25-inch StorageWorks carrier
- Read/write compatible with TZ85, TZ86, TZ87

Software Support

Most common tape functionality, such as COPY, MOUNT, INIT, BACKUP, TAR, and DUMP will function normally on OpenVMS V6.2 or later, Digital UNIX V3.2 or later, and Windows NT 3.51 or later for SCSI-based drives.

Ordering Information

See system ordering menus for specific variants and quantities supported.

TZ88N-TA	TZ88N half-inch cartridge tape drive in tabletop enclosure. Includes media and documentation
TZ88N-VA	TZ88N half-inch cartridge tape drive in StorageWorks 5.25-inch carrier. Includes media and documentation.

Specifications

Single cartridge capacity	20 GB (native)/ 40 GB (compressed)
Drive transfer rate	1.5 MB /sec (native)/ 3.0 MB /sec (compressed)
Compatibility	VAX and Alpha platforms, OpenVMS, DIGITAL UNIX, and Windows NT operating systems
Interface	SCSI-2 (Single-ended) (50-pin low density female connectors)
Physical Characteristics	
Height	14.52 cm (5.72 in.)
Width	23.49 cm (9.25 in.)
Length	33.22 cm (13.08 in.)
Weight	7.7 kg (16.9 lb)
Power Requirements	
Nominal voltage	120 Vac/230 Vac
Minimum voltage	90 Vac/180 Vac
Maximum voltage	135 Vac/270 Vac
Power consumption	27 watts maximum, 25 watts typical
Line type	Single-phase AC, NEMA#515, IEC#320

StorageWorks TZ887/TZ885 DLT Magazine Tape Subsystems

DLT magazine tape subsystems—TZ887 or TZ885— combine DLT cartridge tape drive and an automatic cartridge loader to provide highly reliable unattended backup for SCSI systems. Five or seven cartridges are inserted into the removable magazine. An internal, elevator-like mechanism moves to each of the storage slots to load and unload cartridges.

DLT magazine tape subsystems are offered in full-rack enclosure for inclusion in StorageWorks Cabinets.

Features

- Incorporates the 40 Gbyte TZ88N cartridge tape drives
- Maximum capacity:
  - TZ885—up to five cartridges for maximum 200 Gbyte unattended backup
  - TZ887—up to seven cartridges for maximum 280 Gbyte unattended backup
- TZ885/TZ887 read/write compatibility with Compac Tape III, IIIXT, IV media
- Available in tabletop enclosure and rackmount variants
  - TZ885-NT, TZ887-NT tabletop enclosure
  - TZ885-NE, TZ887-NE rackmount variant

Software Support

Supported on OpenVMS V6.2 or later, DIGITAL UNIX V3.2 or later, requires Robotics and Media Management Software

Software Support

- DIGITAL UNIX, OpenVMS for VAX and Alpha systems, Microsoft Windows NT for Digital Alpha systems (require Robotics and Media Management Software)
- OpenVMS VAX and Alpha supported Storage Management Solutions include the following DIGITAL products:
  - Storage Library System for OpenVMS (SLS) V2.7, or later
  - Hierarchical Storage Management for OpenVMS (VHSM) V1.2A, or later
  - Archive Backup for OpenVMS V1.1 with MDMS V2.7, or later
  - Sequential Media File System V1.2 with MDMS V2.7, or later (requires OpenVMS V6.2, or later on Alpha systems)
  - Media Robot Utility V1.0, or later

  Note: The above applications incorporate the Media and Device Management Services (MDMS)
- DIGITAL UNIX Alpha supported Storage Management Solutions include the following DIGITAL products:
  - NetWorker Save and Restore V3.2A or later
  - Media Robot Utility (MRU) V1.1, or later

Controller and HSOF Support

- HSOF V2.7 or later firmware for HSJ30/40 and HSD30 controllers.
- HSOF V3.0 or later firmware for HSJ30/40, HSD30, and HSZ40.
- HSOF V5.0 or later firmware for HSJ50, HSD50, and HSZ50

Note: Software applications may require different levels of operating system support. Refer to applications SPDs for details of supported platforms and operating system versions.

Ordering Information

TZ887-NT	140/280 GB tabletop seven cartridge loader SCSI tape subsystem. Includes magazine, seven data cartridges, power cord, and documentation. 110/220 V power selectable
TZ887-NE	140/280 GB rackmount seven cartridge loader SCSI tape subsystem for mounting in SW500/SW800 cabinets; includes mounting brackets and cable, 120/240 V power slectable
TZ885-NT	100/200 GB tabletop five cartridge loader SCSI tape subsystem. Includes magazine, five data cartridges, power cord, and documentation. 110/220 V power selectable
TZ885-NE	100/200 GB rackmount five cartridge loader tape subsystem for mounting in SW500/SW800 cabinets; includes mounting brackets and cable, 120/240 V power slectable

StorageWorks TZ887/TZ885 DLT Magazine Tape Subsystems *(continued)*

Upgrade Kit

- TZ887 upgrades will upgrade Tx857/867 to SCSI TZ887. Only loaders with revisions EO3 or greater can use this upgrade package. Contact a DIGITAL Customer Service Representative to determine loader revision.

TZ887-UN TZ887 upgrade kit includes TZ88 drive, replaces Tx8* drive in an existing Tx8*7 tape subsystem

Specifications

Physical Characteristics TZ887

Height	2.65 cm (10.42 in.)
Width	22.2 cm (8.74 in.)
Length	68.6 cm (27.0 in.)
Weight	25 kg (55 lb)

Power Requirements

Nominal voltage	120 Vac/230 Vac
Minimum voltage	90 Vac/180 Vac
Maximum voltage	135 Vac/270 Vac
Power consumption (watts)	83.5 maximum, 82 typical
Dissipation (maximum watts x 3.41)	285 Btu's
Line type	Single-phase, ac, NEMA#515, IEC#320
Interface	SCSI-2 (single ended) 50-pin, low density, female connectors

Physical Characteristics TZ885	**Tabletop**	**Rackmount**
Width	30.0 cm (11.8 in.)	29.5 cm (11.6 in.)
Height	41.4 cm (16.3 in.)	41.4 cm (16.3 in.)
Length	26.7 cm (10.5 in.)	25.4 cm (16.2 in.)
Weight	15.9 kg (35 lb.)	12.27 kg (27 lb.)

Power Requirements

Nominal voltage	120/230 VAC
Minimum voltage	90/180 VAC
Maximum voltage	135/270 VAC
Power consumption (watts)	100 maximum, 40 typical
Line type	Single phase, ac, NEMA 515, IEC 320
Voltage	100 to 240 VAC
Interface	SCSI+2 (single ended) 50-pin, low density, female connectors

Magazine

Physical Characteristics

Width	13.25 cm (5.217 in.)
Height	21.89 cm (8.622 in.)
Length	11.8 cm (4.646 in.)
Weight (empty)	0.59 cm (1.3 lb)
Weight (fully loaded)	2.04 cm (4.5 lb)

StorageWorks TL812 DLT Automated Tape Library

The TL812 is a mid-range automated tape library based on DLT technology. With a capacity of 48 cartridges for data storage and 4 DIGITAL Linear Tape (DLT) TZ88 drives, the TL812 library offers a range of data storage capacity from 0.96 to 1.92 Terabytes. This storage library includes robotic hardware and firmware necessary to store and move up to 52 DLT cartridges, 4 of which are contained in a built-in four-cartridge Load Port (Import/Export).

The TL812 provides a faster access automated tape library ideal for data-center applications for DIGITAL systems, platforms, clusters, and networks. The unsurpassed speed, capacity, and reliability of DLT technology (ANSI standard), integrated with highly reliable proven robotics design, provide a high capacity, high performance, quality product for departmental storage needs.

Combined with Digital's Storage Management software application solutions, or third party applications, the TL812 tape library makes backup, archive, and Hierarchical Storage Management operations easy, quick, reliable, and cost effective.

Features

- Extends the benefits of automated storage management to department and client/server applications presently enjoyed by larger enterprisewide data-centers.
- Integrates automated backup and archiving, and hierarchical storage management to department operations.
- Protects against data loss by providing accurate, secure, auditable archiving and backup of information.
- Provides near-on-line storage in huge capacities but with a small footprint for data-center, network, and server applications.
- Boosts productivity and lowers costs for data-center management and operations through automated access to data.
- Provides cost effective and reliable storage for Hierarchical Storage Manager applications.
- With appropriate application support, provides built-in Automatic Drive Cleaning feature that allows high availability of drives without operator intervention.
- Each library comes configured for four SCSI-2 buses. Internal cabling modifications can be made on site to support systems with less than four SCSI-2 controllers.

Software Support

- DIGITAL UNIX, OpenVMS for VAX and Alpha systems, Microsoft Windows NT for Digital Alpha systems (require Robotics and Media Management Software)
- OpenVMS VAX and Alpha supported Storage Management Solutions include the following DIGITAL products:
  - Storage Library System for OpenVMS (SLS) V2.7, or later
  - Hierarchical Storage Management for OpenVMS (VHSM) V1.2A, or later
  - Archive Backup for OpenVMS V1.1 with MDMS V2.7, or later
  - Sequential Media File System V1.2 with MDMS V2.7, or later (requires OpenVMS V6.2, or later on Alpha systems)
  - Media Robot Utility V1.0, or later

  Note: The above applications incorporate the Media and Device Management Services (MDMS)
- DIGITAL UNIX Alpha supported Storage Management Solutions include the following DIGITAL products:
  - NetWorker Save and Restore V3.2A or later
  - Media Robot Utility (MRU) V1.1, or later

Controller and HSOF Support

- HSOF V2.7 or later firmware for HSJ30/40 and HSD30 controllers.
- HSOF V3.0 or later firmware for HSJ30/40, HSD30, and HSZ40.
- HSOF V5.0 or later firmware for HSJ50, HSD50, and HSZ50

Note: Software applications may require different levels of operating system support. Refer to applications SPDs for details of supported platforms and operating system versions.

Ordering Information

- Each library comes configured for four SCSI-2 buses. Internal cabling modifications can be made on site to support systems with less than four SCSI-2 controllers.
- TL812 ships with four TZ88 drives installed in system, one cleaning cartridge, one DLT data cartridge, and Media Robot Utility (MRU) Software.
- Application software and appropriate external cabling for adapters and controllers must be ordered separately.

TL812-BA TL812 Automated Tape Library

StorageWorks TL812 DLT Automated Tape Library *(continued)*

Specifications

Drives	4 DLT TZ88 tape drives
Library cartridge capacity	52 tape cartridges (48 for data storage, 4 for import/export)
Single cartridge capacity	20 GB (native)/ 40 GB (compressed)
Single drive transfer rate	1.5 MB /sec (native)/ 3.0 MB /sec (compressed)
Compatibility	VAX and Alpha platforms, OpenVMS, DIGITAL UNIX, and Windows NT operating systems with application software
Interface	SCSI-2 (Differential) (50-pin low density female connectors)
Physical Characteristics	
Height	43.3 inches (1.10 meters)
Width	23 inches (0.58 meters)
Depth	31.9 inches (0.81 meters)
Weight	378 lbs. (171.51 Kg.) with 52 cartridges and DLT tape drives
Power Requirements	
Power	115V/230V, 50Hz/60Hz (nominal) IEC 320 male connector

StorageWorks TL822 DLT Automated Tape Library

The TL822 DIGITAL Linear Tape (DLT) library providing up to 10.56 Terabytes of storage for unattended backup operations, archiving, hierarchical storage management, large-scale data storage, and video-on-demand applications.

With significantly greater storage capacity than the IBM 3480-compatible ATL subsystems, in a smaller footprint, the TL822 provides users with the ability to automate large-scale backup and archiving and hierarchical storage management operations at a fraction of the cost of other technologies.

The performance and capacity of the TL822 subsystem are suited to the implementation of large-scale archival, hierarchical storage management and near-line storage. The TL822 uses three high performance TZ88 tape drives for unsurpassed data integrity, and high capacity (up to 40 Gbytes compressed per cartridge)

The TL822 is a high capacity, 264-cartridge automated tape library (ATL) designed to provide high capacity storage and robotic access for Digital's DLT series of tape drives. Housed in a 79-inch (200 cm) tall cabinet, each 28-inch (72 cm) wide tower contains up to 264 DLT tape cartridges and three differential SCSI-2 DLT drives. A single TL822 can provide 5.28 Terabytes of storage capacity, or approximately 10.56 Terabytes using the TZ88 drive's hardware data compression. Up to five TL822 towers can be connected together with their robots supported by one differential SCSI-2 multi-unit controller as a single logical unit.

Features

- Based on industry-leadership DLT tape technology
- High capacity and performance in small (9 sq. ft) footprint
- Lowers entry-price for large-scale unattended backup and archiving
- Expandable up to 5 TL822/TL826 libraries controlled as a single logical unit

Software Support

- DIGITAL UNIX, OpenVMS VAX and Alpha systems, Windows NT Alpha systems (require Robotics and Media Management Software).
- OpenVMS VAX and Alpha supported Storage Management Solutions include the following DIGITAL products:
  - Storage Library System for OpenVMS (SLS) V2.6, or later
  - Hierarchical Storage Management for OpenVMS (VHSM) V1.2A, or later
  - Archive Backup for OpenVMS (PAB) V1.1, or later
  - Sequential Media File System (SMF) V1.2 (requires OpenVMS V6.2 on Alpha systems)
  - Media Robot Utility (MRU) V1.0, or later
  - **Note:** The above applications incorporate the Media and Device Management Services (MDMS)
- DIGITAL UNIX Alpha supported Storage Management Solutions include the following DIGITAL products:
  - NetWorker Save and Restore (NSR) V3.2
  - Media Robot Utility (MRU) V1.1, or later
- Windows NT Alpha systems
  - NetWorker Save and Restore for Windows NT 4.3 Alpha systems

Controller and HSOF Support

- HSOF V2.7 or later firmware for HSJ30/40 and HSD30 controllers.
- HSOF V3.0 or later firmware for HSJ30/40, HSD30, and HSZ40.
- HSOF V5.0 or later firmware for HSJ50, HSD50, and HSZ50

Ordering information

- Library cabinet is configured with three SCSI-2 buses. Internal library cabling modifications can be made on-site to support systems with less than three SCSI-2 controllers.
- TL822 Library includes Media Robot Utility (MRU) software.
- First unit ordered must be TL822-BA.

Note: Software applications may require different levels of operating system support. Refer to applications SPDs for the application minimum requirements.

StorageWorks TL822 DLT Automated Tape Library *(continued)*

.. TL822-AC is an add-on library and requires a base library unit. Check applications for support of add-on libraries.

TL822-BA	DLT tape library with three TZ88 drives and Inport/Outport Device
TL822-AC	DLT library expansion cabinet with three TZ88 drives and attachment kit
TL82X-BA	Cartridge bin pack for TL822, holds 11 cartridges

Specifications

TL822 Tape Library Unit Specifications

Drives	3 DLT TZ88 tape drives
Library cartridge capacity	264 tape cartridges
Single cartridge capacity	20 GB (native)/ 40 GB (compressed)
Single drive transfer rate	1.5 MB /sec (native)/ 3.0 MB /sec (compressed)
Compatibility	VAX and Alpha platforms, OpenVMS, DIGITAL UNIX, and Windows NT operating systems with application software
Interface	SCSI-2 (Differential) (50-pin low density female connectors)
Physical Characteristics	
Height	78.7 in/200 cm
Width	36 in/ 72 cm
Depth	47 in/120 cm
Weight	784 lbs (356 kg) with drives, unloaded
Power Requirements	
Power	90–132 and 176–264V autoranging, 47 to 63 Hz
MSBF	600,000 swaps

Note: These performance statistics reflect only the drive capabilities; actual drive performance is a function of the system configuration and its application

StorageWorks TL826 DLT Automated Tape Library

The TL826 DIGITAL Linear Tape (DLT) library provides up to 7.04 Terabytes of storage for unattended backup operations, archiving, hierarchical storage management, large-scale data storage, and video-on-demand applications.

With six TZ88 DLT drives, the TL826 provides users with increased performance and sufficient capacity to automate storage management operations at a fraction of the cost of other technologies. TZ88 tape drives offer unsurpassed data integrity and high capacity (up to 40 Gbytes compressed per cartridge). The extensible nature of the units, combined with future growth in drive capacity, provide a scaleable solution for application and system growth.

The TL826 is a high capacity, 176 cartridge automated tape library (ATL) designed to provide high capacity storage and robotic access for Digital's DLT series of tape drives. Housed in a 79-inch (200 cm) tall cabinet, each 28-inch (72 cm) wide tower contains up to 176 DLT tape cartridges and six differential SCSI-2 DLT drives. A single TL826 can provide 3.52 Terabytes of storage capacity, or approximately 7.04 Terabytes using the TZ88 drives hardware data compression. Up to five TL826 towers can be connected together with their robots supported by one differential SCSI-2 multi-unit controller as a single logical unit.

Features

- Based on industry leadership DLT tape technology
- High capacity and performance in small footprint (9 square foot)
- Lowers entry-price for large-scale unattended backup and archiving
- Expandable up to 5 TL822/TL826 Libraries controlled as a single logical unit

Software Support

- DIGITAL UNIX, OpenVMS for VAX and Alpha systems, Microsoft Windows NT for Digital Alpha systems (require Robotics and Media Management Software)
- OpenVMS VAX and Alpha supported Storage Management Solutions include the following DIGITAL products:
  - Storage Library System for OpenVMS (SLS) V2.7, or later
  - Hierarchical Storage Management for OpenVMS (VHSM) V1.2A, or later
  - Archive Backup for OpenVMS V1.1 with MDMS V2.7, or later
  - Sequential Media File System V1.2 with MDMS V2.7, or later (requires OpenVMS V6.2, or later on Alpha systems)
  - Media Robot Utility V1.0, or later

  Note: The above applications incorporate the Media and Device Management Services (MDMS)
- DIGITAL UNIX Alpha supported Storage Management Solutions include the following DIGITAL products:
  - NetWorker Save and Restore V3.2A or later
  - Media Robot Utility (MRU) V1.1, or later

Controller and HSOF Support

- HSOF V2.7 or later firmware for HSJ30/40 and HSD30 controllers.
- HSOF V3.0 or later firmware for HSJ30/40, HSD30, and HSZ40.
- HSOF V5.0 or later firmware for HSJ50, HSD50, and HSZ50

Note: Software applications may require different levels of operating system support. Refer to applications SPDs for details of supported platforms and operating system versions.

Ordering Information

- Library cabinet is configured with six SCSI-2 buses. Internal library cabling modifications can be made on site to support systems with less than six SCSI-2 controllers.
- TL826 Library includes Media Robot Utility (MRU) software
- First unit ordered must be TL826-BA.
- TL826-AC is an add-on library and requires a base library unit. Check applications for support of add-on libraries.

TL825-BA	DLT tape library with six TZ88 drives and Inport/Outport Device
TL826-AC	DLT library expansion cabinet with six TZ88 drives and attachment kit
TL82X-BA	Library Cartridge Holder (holds 11 cartridges)

StorageWorks TL826 DLT Automated Tape Library *(continued)*

Specifications

TL826 Tape Library Unit	
Drives	6 DLT TZ88 tape drives
Library cartridge capacity	176 tape cartridges
Single cartridge capacity	20 GB (native)/ 40 GB (compressed)
Single drive transfer rate	1.5 MB /sec (native)/ 3.0 MB /sec (compressed)
Compatibility	VAX and Alpha platforms, OpenVMS, DIGITAL UNIX, and Windows NT operating systems with application software
Interface	SCSI-2 (Differential) (50-pin low density female connectors)
Physical Characteristics	
Height	78.7 inches (200 cm)
Width	28.2 inch (72 cm)
Depth	47 inches (120 cm)
Weight	784 lbs (356 kg) with drives, unloaded
Power Requirements	
Power	90-132 and 176-264V autoranging, 47 to 63 Hz
MSBF	600,000 swaps

Note Performance statistics reflect only the drive capabilities; actual drive performance is a function of the system configuration and its application

StorageWorks TLZ09 DAT Tape Drive and TLZ9L Autoloader

TLZ09 is a DDS-2 DAT tape drive for backup, archiving, and data interchange applications. Based on the DDS-2 standard, the TLZ09 provides up to 8 Gbytes of unattended backup capability with a sustained transfer rate of up to 1,550 Kbytes/per second. It is up to 90% faster that other DDS-2 DAT drives. It is offered as an embedded device, in a 3.5-inch or 5.25-inch, half-height form factor, as a StorageWorks System Building Block or as a tabletop model. It is read and write compatible with media used in TLZ04, TLZ06, TLZ07 tape drives and TLZ6L, TLZ7L, and TLZ9L tape loaders and other DDS, DDS-DC, and DDS-2 compliant tape drives.

The TLZ9L DAT tape autoloader supports a standard 8 cartridge magazine with up to 64 Gigabytes of capacity. Based on the TLZ09, it achieves a sustained transfer rate up to 1,550 Kilobytes per second. With high capacity and high performance, it is ideal for unattended server backup and archiving applications. It is available in a 5.25 inch full height form factor for internal mounting and also tabletop and StorageWorks System Building Block models. Like the TLZ09, it is read-write compatible with all DDS, DDS-DC and DDS-2 compliant media.

Both TLZ09 and TLZ9L are third-generation DAT drives with hardware data compression and read-after-write verification to provide reliable data recording on 60, 90 or 120 meter data cassettes. The DIGITAL Data Storage (DDS) recording format implements 10 distinct error-handling techniques, including three levels of error correction code (ECC) to ensure superlative data reliability.

The TLZ09 and TLZ9L support DDS-2 media which achieves 8 Gigabytes of storage per 120-meter cartridge using a typical 2x data compression. The Digital Data Storage recording formats (DDS) ensure that media is interchangeable. DDS-2 labeled media is required to ensure the highest data integrity during read/write operations.

Both TLZ09 and TLZ9L implement the DDS-2 media recognition system which identifies a striped tape leader on data-grade tapes. The system eliminates performance and service issues related to inadvertent use of audio-grade media cartridges.

Data compression is software selectable on the TLZ09 and TLZ9L. It can be turned off to read and write to 60 or 90 meter DAT tapes for interchange with the TLZ04 or TLZ06 tape drives. However, it is important to remember that data compressed and recorded on 60 meter DAT cassettes cannot be read by the TLZ04 drive. The TLZ04 will **not** handle 90 or 120 meter DAT cartridges, and the TLZ06 will **not** handle 120 meter DAT cartridges.

Features TLZ09 DAT tape drive and TLZ9L DAT tape autoloader

- Fast back up. 775/1550-Kbyte/s transfer rate. Up to 90% faster than comparable products
- Up to 8 Gigabytes capacity per cassette
- TLZ9L has up to 64 Gigabytes capacity per magazine.
- Read and write compatible with TLZ04, TLZ06, TLZ07, TLZ6L, and TLZ7L
- Industry-standard DDS, DDS-DC and DDS-2 formats for industry-wide data interchange
- Compatible with Digital UNIX, VMS-Alpha, VMS VAX, Windows NT and StorageWorks solutions

Benefits

- High Unattended Backup Capacity: The DDS-2 format provides a native unattended capacity of 4 Gbytes, and compressed capacity of 8 Gbytes, providing an effective match for many of today's servers. The TLZ9L provides a native, unattended capacity of 32 Gbytes, and compressed capacity of up to 96 Gbytes with the optional TLZ6L-12 magazine.
- First Generation Read/Write Compatibility: The TLZ09 and TLZ9L can read and write DDS, DDS-DC and DDS-2 media ensuring investment protection as well as data interchange with other DDS drives.
- Multiple Packaging Options: The TLZ09 and TLZ9L are available in system-installed, tabletop, and StorageWorks versions to fit the customer's packaging requirements.
- Media Quality Checking: The TLZ07 implements DDS-2 media recognition system, eliminating performance and service issues related to inadvertent use of audio-grade media cartridges.

StorageWorks TLZ09 DAT Tape Drive and TLZ9L Autoloader *(continued)*

Operating System Support TLZ09

- OpenVMS VAX V5.5-2, V5.5-2H4, V6.0, V6.1 (requires MK driver enhancement kit [QA-MT1AA-Up.6.1])
- OpenVMS Alpha V6.2
- DIGITAL UNIX V3.2
- Windows NT 3.51 (with service pack 5) and Windows NT 4.0

Operating System Support TLZ9L

- OpenVMS VAX V5.5-2, V5.5-2H4, V6.0, V6.1 (requires MK driver enhancement kit [QA-MT1AA-Up.6.1])
- OpenVMS Alpha V1.5 and V6.1 (requires MK driver enhancement kit [QA-MT1AA-Up.6.1])
- DIGITAL UNIX V2.0
- Windows NT support requires media management application

Support TLZ9L

- Storage Library System V2.5
- Hierarchical Storage Management V1.1
- NetWorker Save and Restore V3.0
- Archive Backup V1.0
- Sequential Media File System V1.0

Storage Controllers Support

See the Controller Software Product Description for controller support information.

Ordering Information

- One TLZ04-HA media cartridge and one TLZ07-CA cleaning cartridge included with all TLZ09 models. TLZ9L includes one TLZ9L-08 magazine, one TLZ04-HA cleaning cartridge and eight TLZ07-CA media tapes.
- See system ordering menus for specific variants and quantities supported.

TLZ09 Tape Drive

TLZ09-DB	8 GB 4 mm DAT tabletop tape drive with 3-foot SCSI cable (BN23G-01)for 50 pin HD host SCSI port and one SCSI terminator. Supported on AlphaServers 8400, 8200, 4100, 4000, 2100, 2100A, 2000, 1000, 400, AlphaStations 600, 400, 255, 250, 200, DEC4000-700/600, VAXstation 4000-60/96/98
TLZ09-DC	8 GB 4 mm DAT tabletop tape drive with 3 foot SCSI cable (BN23G-01) and adapter (BN36A-0B) for 68 HD host SCSI port and one SCSI terminator. Supported on AlphaStation 500
TLZ09-DD	8 GB 4 mm DAT tabletop tape drive with 3-foot (BN31H-01) cable for 50 pin LD host SCSI adapter and one SCSI terminator. Supported on VAX 4000 systems, MicroVAX 3100-30/40/80/85/90/96, and DEC 3000 systems.
TLZ09-HF	8 GB 4 mm Internal DAT tape drive. Supported on MicroVAX 3100, VAXstation 4000-60/90/96, VAX 4000 106A (5.25” 068 Gray)
TLZ09-LG	8 GB 4 mm Internal DAT tape drive. Supported on AlphaServer 8400, 8200, 2100, 2000 (5.25” 068 gray)
TLZ09-LK	8 GB 4 mm Internal DAT tape drive. Supported on AlphaServer 4100,4000, VAX 4000-108, MicroVAX 3100-88/98 (5.25” white)
TLZ09-VA	8 GB 4 mm DAT tape drive in a 3.5-inch StorageWorks carrier
SWXTA-CT	8 GB 4 mm DAT tabletop tape drive. Supported by StorageWorks RA210,230,310,410,450, ESA-2

TLZ9L Tape Autoloader

TLZ9L-DB	64 GB, 4 mm SCSI DAT autoloader. Tabletop. Includes 1 meter SCSI cable (BN23G-01) and one SCSI terminator.
TLZ9L-LG	64 GB, 4 mm SCSI DAT tape autoloader, internal, factory / field. 217 gray and 277 blue bezels
TLZ9L-VA	64 GB, 4 mm SCSI DAT tape autoloader in snap-in 5.25 inch SPB StorageWorks carrier

StorageWorks TLZ09 DAT Tape Drive and TLZ9L Autoloader *(continued)*

Media

TLZ04-HA	Cleaning cartridge for TLZ04, TLZ06, TLZ07,TLZ09
TLZ04-CB	Five-pack of 60-m data cartridges for TLZ04, TLZ06, TLZ07,TLZ09
TLZ06-CB	Five-pack of 90-m data cartridges for TLZ04, TLZ06, TLZ07,TLZ09
TLZ07-CA	Single 120-m data cartridge for TLZ07,TLZ09
TLZ07-CB	Five-pack of 120-m data cartridges for TLZ07,TLZ09
SWXMP-DC	100 pack of 120-m data cartridges for TLZ07, TLZ09

KZQSA Adapter (required for the following systems)

KZQSA-AA	Adapter for BA23 MicroVAX II systems
KZQSA-BA	Adapter for BA123 MicroVAX II systems
KZQSA-SA/SF	TLZ07 adapter for BA200/BA400 MicroVAX 3000 and VAX 4000 systems; factory/field installed

Power Cords (240 V devices require a country-specific power cord)

BN19P-2E	**USA (standard)**
BN19A-2E	**U.K./Ireland**
BN19C-2E	**Austria, Belgium, Finland, France, Germany, Holland, Norway, Portugal, Spain, Sweden**
BN19E-2E	**Switzerland**
BN19H-2E	**Australia/New Zealand**
BN19K-2E	**Denmark**
BN19M-2E	**Italy**
BN19S-2E	**India**
BN18U-2E	**Israel**

Specifications

	TLZ09	TLZ9L
Capacity per cartridge	8 GB (120m tape)	8 GB (120m tape)
Capacity per magazine		8 cartridges per magazine Up to 64 Gigabytes per magazine
Buffer Size	1 MB	1 MB
Transfer Rate	775/1550 KBs sustained	775/1550 KBs sustained
Burst transfer rate	Asynchronous – 5Mbytes per second (maximum) Synchronous 10 Mbytes per second (maximum)	Asynchronous – 5Mbytes per second (maximum) Synchronous 10 Mbytes per second (maximum)
Recording block length	Variable or fixed	Variable or fixed
Access time	Less than 40 seconds with a 120 meter tape	Less than 40 seconds with a 120 meter tape
Search time	Approximately 100 times nominal read/write speed	Approximately 100 times nominal read/write speed
Magazine initialize time		90 seconds (typical)
Swap time		50 seconds (typical
Move		32 seconds minimum to 85 seconds maximum
Uncorrected error rate	Less then 1 in 10^{15} bits	Less then 1 in 10^{15} bits
MTBF (1)	200,000 hours power on at 20% duty cycle	180,000 hours power on at 20% duty cycle Greater than 160,000 swaps
Operating temperature	41-104 $^{\circ}$ F / 5-40 $^{\circ}$ C	50-104 $^{\circ}$ F / 10-40 $^{\circ}$ C
Operating humidity	20 to 80 percent (non condensing) 79° F / 26° C maximum wet bulb temperature	20 to 80 percent (non condensing) 79° F / 26° C maximum wet bulb temperature
Power consumption (internal)	17 watts (maximum), 10 watts (average)	32.5 watts (maximum), 8.4 watts (average)
Accessories (all models)		
Media cartridge	1 TLZ07-CA	8 TLZ07-CA
Cleaning cartridge	1 TLZ04-HA	1 TLZ04-HA
Users Manual	1 EK-TLZ09-OM	1 EK-TLZ09-OM
Magazine		1 TLZ9L-08

Media Robot Utility CD-ROM	included

StorageWorks TLZ09 DAT Tape Drive and TLZ9L Autoloader *(continued)*

Additional tabletop accessories		
SCSI terminator	H8860-AA	H8860-AA
SCSI cable included	TLZ09-DB BN23G-01	TLZ09-DB -BN23G-01
for 50 pin HD host	TLZ09-DC BN23G-01 + BN36A-0B	
for 68 pin HD host	TLZ09-DD BN19J-03	
for 50 pin LD host		
SCSI connector (tabletop only)	50-pin low density SCSI-2	50-pin low density SCSI-2
Format and Compatibility		
Note**:** When DDS-media is used, tape drive and autoloader default to DDS-1 format and operation.		
Recording Format	DDS-2 (120m tape)	DDS-2 (120m tape)
Write/Read	DDS-1 (90/60m tape)	DDS-1 (90/60m tape)
Write/Read	DDS-DC (90/60m tape)	DDS-DC (90/60m tape)

Physical Characteristics TLZ09 Tape Drive

TLZ09	**3.5-inch Embedded**	**5.25-inch Embedded**	**Tabletop**
Height	4.1 cm (1.6 in.)	4.1 cm (1.6 in.)	52 cm (2.1 in.)
Width	10.1 cm (4.0 in.)	14.6 cm (5.7 in.)	16 cm (6.3 in.)
Depth	146 cm (5.8 in.)	146 cm (5.8 in.)	30 cm (11.8 in.)
Weight	0.7 kg (1.5 lb)	0.9 kg (2.0 lb)	2.2 kg (4.9 lb)

Physical Characteristics TLZ9L Tape Loader

TLZ9L	**5.25-inch Embedded**	**Tabletop**
Height	8.3 cm (3.25 in.)	10.9 cm (4.3 in.)
Width	14.6 cm (5.75 in.)	21.1 cm (8.3 in.)
Depth	24.2 cm (9.5 in.)	29.6 cm (11.7 in.)
Weight	2.4 kg (5.3 lb)	5.0 kg (11 lb)

StorageWorks TKZ9E 8 mm Helical Scan Tape Drive

The TKZ9E is an industry-standard 8 mm helical scan tape drive which supports 2.3, 5.0, 7.0, 10.0 and 14.0 GB modes. Push buttons on front panel allow user to select a range of densities and compression modes, to ensure compatibility with previous DIGITAL 8 mm tape drives, such as the TKZ08, TLZ08, TKZ09, TKZ15, and Exabyte EXB8200/8500/8505-based tape drives.

The display panel, with two numeric/alphanumeric LED displays and eleven LED indicators, provides valuable operator information on the quality of the tape being used, how much tape is left on cartridge, and whether loaded tape cartridge was written in compressed mode. Both tabletop and StorageWorks system building block variants are available.

Highlights

- Backward tape compatibility with 8 mm helical scan tape drives
- Storage capacity: 7 GB (14 GB compressed, 2:1 typical)
- Supports 112 meter and extended-length (164 meter) tapes
- Interface: SCSI-2, Single ended, narrow
- Sustained data rate: 500 (1000 compressed) Kbytes-per-second
- Auto ranging power supply (-TA variant)

Software Support

- DIGITAL UNIX, V3.2 minimum
- OpenVMS V5.5-2 minimum for OpenVMS VAX systems
- OpenVMS V6.2 minimum for OpenVMS Alpha systems

Adapter/Controller Support

- Most native single-ended SCSI ports
- PMAZC TurboChannel/SCSI controller
- KZPAA PCI/SCSI controller
- KZPSA PCI/SCSI controller
- PB2HA EISA/SCSI controller
- DWZZA differential to single-ended converter
- KZQSA Qbus/SCSI controller
- KZMSA XMI/SCSI controller
- AlphaServer 8200 and 8400 with KFTIA controller

Ordering Information

TKZ9E-TA	8 mm Tape Drive, SCSI, (8200/8500/8505-compatible), tabletop Unit, 120V AC Power Cord, and SCSI Terminator, with One Cleaning Cartridge, Two Blank 112-meter Tapes, and User Documentation (1)
TKZ9E-VA	8 mm Tape Drive, SCSI, (8200/8500/8505-compatible), 5.25” StorageWorks System Building Block, with One Cleaning Cartridge, Two Blank 112-meter Tapes, and User Documentation
TKZ8X-CB	Five, 112-meter, 8 mm Tape Cartridges

SCSI Cabling

The TKZ9E-TA, tabletop variant uses a 50-pin low density, bail lock “champ” SCSI connector. SCSI cables must be order separately.

Power Cords

Note: The -TA tabletop variant includes a 120 V power cord. Select country specific power cord for all other voltages.

BN19A-2E	U.K./Ireland
BN19C-2E	Austria, Belgium, Finland, France, Germany, Holland, Norway, Portugal, Spain, Sweden
BN19E-2E	Switzerland
BN19H-2E	Australia/New Zealand
BN19K-2E	Denmark
BN19M-2E	Italy
BN19S-2E	India
BN18U-2E	Israel

StorageWorks TKZ9E 8 mm Helical Scan Tape Drive *(continued)*

Specifications

Drive Specification

Physical block size	1024 data bytes +400 ECC bytes
Data Buffering	1 MB speed matching buffer
Transfer Rate	500 KB/second to 75 MB/second
Track Density	1640 tracks/inch (8500/8505)
Track Width	.025 mm (.001 inch)
Power	+5 VDC, +12 VDC/15 Watts typical

Physical Characteristics

TKZ9E	**StorageWorks**	**Tabletop**
Width	15.2 cm (6.00 in.)	14.6 cm (5.75 in.)
Depth	21.8 cm (8.60 in.)	20.3 cm (8.00 in.)
Height	11.4 cm (4.50 in.)	8.3 cm (3.25 in.)

TKZ60/TKZ61/TKZ62/TKZ63/TKZ64 Tape Drive Family

The TKZ60 family consists of IBM compatible tape drives with a SCSI 2 interface that can be connected to most DIGITAL native SCSI ports and SCSI controllers.

TKZ60 series consists of IBM 3480/3490 compatible tape drives. TKZ60 series is TA90/91 compatible, available in rackmountable and tabletop configurations. A 19" RETMA mounting kit is available for rackmountable drive. Mounting kits for StorageWorks SW500/800 are not available. TKZ60 series is designed for customers who require sporadic data interchange on IBM 3480/3490 tape media.

TKZ61 series consists of IBM 3480/3490 compatible tape drives with integrated 10-cartridge loader. TKZ61 series is TA90/91 compatible and available in rackmountable, pedestal and tabletop configurations. Drive includes 19" RETMA cabinet mounting hardware. StorageWorks SW500/800 mounting kits are available. TKZ61 series is designed for customers who perform backups on IBM tape media and have significant IBM tape interchange requirements.

TKZ63 series has the same features as the TKZ62 series but without an autoloader. The TKZ63 also includes a FWD SCSI variation for even faster data transfer. The TKZ63 series is designed for customers who require sporadic data interchange and must use IBM 3490E tape media. An optional mounting kit is available for RETMA 19" rack mounting.

In some geographies, a 2T-TKZ64 SERIES is available which has the same features as the TKZ62 SERIES but contains a 60-slot loader for very large data backups. When coupled with library software, it can also be used as a small library where slow response time is acceptable (there is ony one drive mechanism). The 2T-TKZ64 is contained in its own free standing cabinet.

TKZ62 series consists of IBM 3480/3490/3490E compatible tape drives with integrated 10-cartridge loader. TKZ62 series is TA90/91/92 compatible and available in rackmountable, pedestal and tabletop configurations. Drive includes 19" RETMA cabinet mounting hardware. StorageWorks SW500/800 mounting kits are available. The TKZ62 series is designed for customers who perform backups on IBM tape media, have significant IBM tape interchange requirements, and need increased capacity per cartridge provided by the inclusion of 3490E 36-track capability. TKZ62 tape drive is unique in that it is the only IBM 3490E compatible tape drive that can read AND write in 3480/3490 18-track mode.

TKZ62 series consists of IBM 3480/3490/3490E compatible tape drives with integrated 10-cartridge loader. TKZ62 series is TA90/91/92 compatible and available in rackmountable, pedestal and tabletop configurations. Drive includes 19" RETMA cabinet mounting hardware. StorageWorks SW500/800 mounting kits are available. The TKZ62 series is designed for customers who perform backups on IBM tape media, have significant IBM tape interchange requirements, and need increased capacity per cartridge provided by the inclusion of 3490E 36-track capability. TKZ62 tape drive is unique in that it is the only IBM 3490E compatible tape drive that can read AND write in 3480/3490 18-track mode.

TKZ60 Features

- TA90/91 read/write compatible
- IBM IDRC data compression
- Up to 400 MB per cartridge
- Slow Narrow Single Ended and Slow Narrow Differential variants
- Single cartridge load only
- Autoranging power supply
- MB/Sec max transfer rate

TKZ60 Features

- IBM IDRC data compression
- Slow Narrow Single Ended and Slow Narrow Differential variants
- Autoranging power supply

TKZ60/TKZ61/TKZ62/TKZ63/TKZ64 Tape Drive Family *(continued)*

TKZ61 Features

- TA90/91 read/write compatible
- Up to 400 MB per cartridge
- 10-cartridge integrated loader
- 3.0 MB/Sec max transfer rate
- IBM IDRC data compression
- Slow Narrow Single Ended and Fast Narrow Differential variants
- Autoranging power supply

TKZ62 Features

- TA90/91/92 read/write compatible
- Up to 2.4 GB per cartridge
- 10-cartridge integrated loader
- 3.0 MB/Sec max transfer rate
- IBM IDRC data compression
- Slow Narrow Single Ended , Fast Narrow Differential, and Fast Wide Differential SCSI variants
- Autoranging power supply

Hardware Support

- KZMSA on AlphaServer 8400 with XMI bus
- KZPAA and KZPSA controllers for PCI based systems
- HSJxx controllers for CI clusters
- HSD05 and HSD10 controllers for DSSI connections
- KZQSA controller for Q-bus MicroVAX and VAX 4000 systems
- PMAZC Turbochannel/SCSI controller
- PB2HA EISA/SCSI controller
- AlphaServer 8200 and 8400 with KFTIA controller

Software Support

- TKZ60 series requires minimum of OpenVMS VAX V5.4-1, OpenVMS Alpha V1.0, RISC Ultrix V4.2A with CAM and DIGITAL UNIX V1.2
- TKZ60 requires HSOF firmware V2.0 minimum. TKZ61/62/63/64 requires HSOF firmware V2.7 minimum
- NetWorker Save and Restore on DIGITAL UNIX as of V2.2B
- TKZ61/62/63/64 series drives require minimum of OpenVMS VAX V5.5-2, OpenVMS Alpha V6.1, DIGITAL UNIX V2.0
- TKZ60/61/62/63 support on Alpha Windows NT requires 3.5 or V3.51 and layered software, QB-4STAA-SA
- Media Robotic Utility (MRU) V1.1
- Storage Library System V2.8A
- Archive/Backup V2.1
- Sequential Media File System V1.2
- Hierarchical Storage Management V2.1

SW500/800 Mounting Kits

TKZ6R-S1	Mounting kit for one TKZ61/62 drive in SW500/800 cabinet. Includes 1-drive bezel and mounting hardware
TKZ6R-S2	Mounting kit for two TKZ61/62 drives in SW500/800 cabinet. Includes 2-drive bezel and mounting hardware
TKZ6R-S3	Mounting kit for three TKZ61/62 drives in SW500/800 cabinet. Includes 3-drive bezel and mounting hardware

Metric Cab Mounting Kit

TKZ6R-M1	Mounting kit for one TKZ61/62 drive in metric dimensioned cabinet. Includes 1-drive bezel and mounting hardware

TKZ60/TKZ61/TKZ62/TKZ63/TKZ64 Tape Drive Family *(continued)*

TKZ6x

TKZ60-EA	Rackmountable 3480/3490 compatible tape drive with IDRC data compression, manual loading, single ended SCSI, 120/240V. Includes one cleaning cartridge, one data cartridge, 120V power cord, and documentation. Requires TK60R-AA rackmount kit for 19" RETMA cabinets. One kit mounts up to two TKZ60 drives
TKZ60-FA	Same as TKZ60-EA except for tabletop single-ended SCSI
TKZ60-GA	Same as TKZ60-EA except for rackmount differential SCSI
TKZ60-HA	Same as TKZ60-FA except for tabletop differential SCSI
TKZ61-AA	Rackmountable, 3480/3490 compatible tape drive with IDRC data compression, integrated 10 cartridge loader, single ended SCSI, 120/240V. Includes one cleaning cartridge, one data cartridge, cabinet slide kit, 120V power cord, and documentation
TKZ61-AB	Same as TKZ61-AA except for pedestal single-ended SCSI
TKZ61-AC	Same as TKZ61-AA except for tabletop single-ended SCSI
TKZ61-AD	Same as TKZ61-AA except for rackmount differential SCSI
TKZ61-AE	Same as TKZ61-AB except for pedestal differential SCSI
TKZ61-AF	Same as TKZ61-AC except for tabletop differential SCSI
TKZ62-AA	Rackmountable, 3480/3490/3490E compatible tape drive with IDRC data compression, integrated 10 cartridge loader, single ended SCSI, 120/240V. Includes one cleaning cartridge, one data cartridge, cabinet slide kit, 120V power cord, and documentation.
TKZ62-AB	Same as TKZ62-AA except for pedestal single-ended SCSI
TKZ62-AC	Same as TKZ62-AA except for tabletop single-ended SCSI
TKZ62-AD	Same as TKZ62-AA except for rackmount differential SCSI
TKZ62-AE	Same as TKZ62-AB except for pedestal differential SCSI
TKZ62-AF	Same as TKZ62-AC except for tabletop differential SCSI
TKZ62-AG	Same as TKZ62-AA except Fast Wide Differential SCSI
TKZ62-AH	Same as TKZ62-AB except Fast Wide Differential SCSI
TKZ62-AI	Same as TKZ62-AC except Fast Wide Differential SCSI
TKZ63-AA	Tabletop 3480/3490/3490E compatible tape drive with IDRC data compression, single slot manual load, Fast Narrow single ended SCSI, 120/240V. Includes one data cartridge, one cleaning cartridge, 120V power cord, and documentation. Requires one TKZ6R-AB kit for 19" RETMA cabinet mounting.
TKZ63-BA	Same as TKZ63-AA, except Fast Wide Differential SCSI.
2T-TKZ64-AA	Free standing 3480/3490/3490E compatible 60-slot mini library, fast narrow differential SCSI, 120/240V. Includes one data cartridge, one cleaning cartridge, 120V power cord, and documentation.
2T-TKZ64-BA	Same as 2T-TKZ64-AA except Fast Wide Differential SCSI.
TKZ6R-AB	TKZ63-AA/BA 19" cab mounting kit. One kit mounts up to two tabletop drives.
TK60U-AB	Upgrades early non-compression TKZ60 drives to IDRC data compression. Note: Only TKZ60 drives built after May, 1993 may be upgraded. Manufacture date can be found on TKZ60 serial number label
TK60R-AA	Mounting kit for up to two TKZ60 drives in a 19" RETMA cabinet
TK60K-BA	Box of four, 5-slot, magazines to hold data cartridges for early TKZ60 drives with front mounted loader mechanisms
TK60K-BB	Box of four, 10-slot, magazines to hold data cartridges for early TKZ60 drives with front mounted loader mechanisms

Media and Cleaning Cartridge

TA90K-30	IBM compatible 18-track data cartridge, quantity 30 (thirty)
TKZ6K-30	IBM compatible 36-track data cartridge, quantity 30 (thirty)
TA90K-HC	Cleaning cartridge

TKZ60/TKZ61/TKZ62/TKZ63/TKZ64 Tape Drive Family *(continued)*

SCSI Cables and Power Cords

Both the Slow Narrow Single Ended and Fast Narrow Differential TKZ60 family variants use a 50-pin, low density, bail lock "Champ" SCSI connector. The Fast Wide Differential variants use a 68-pin, high density, connector with thumb screws. SCSI cables must be ordered separately.

All TKZ60 family tape drives include a 120 volt power cord. Select country specific power cord for all other voltages.

BN19H-2E	Australia/New Zealand
BN19C-2E	Austria, Belgium, France, Germany, Finland, Holland, Norway, Sweden, Portugal, Spain
BN19A-2E	U.K./Ireland
BN19K-2E	Denmark
BN19M-2E	Italy
BN19S-2E	India
BN18L-2E	Israel

Specifications

Physical Characteristics

Tabletop Unit	**TKZ60**	**TKZ61/62**	**TKZ63**	**2T-TKZ64**
Height	11.74 cm (7.4 in.)	17.71 cm (6.97 in.)	25.9 cm (10.2in.)	132.8 cm (52.3in.)
Width	21.72 cm (9.2 in.)	43.19 cm (17.0 in.)	22.2 cm (8.75in.)	45.2 cm (17.8in.)
Depth	59.98 cm (22.4 in.)	61.10 cm (24.05 in.)	43.2 cm (17.0in.)	70.6 cm (27.8in.)
Weight	11.34 kg (25 lb)	27.22 kg (60 lb.)	15.8 kg (34.8lb.)	102.1 kg (225lb.)
Power Requirements				
Power Consumption	150 W/hr	150 W/hr	150 W/hr	150 W/hr

Note: For additional information reference TKZ60 Family Data Sheet, EC-F7837-36.

TSZ07 Reel to Reel Tape Device

The TSZ07 is a dual-density 1600/6250-bit/inch magnetic tape drive that can be connected to most SCSI controllers and adapters to provide industry standard 9-track data interchange. For systems with a VAXBI bus a TSB07-xx variant is available that includes a VAXBI/SCSI adapter for ease of ordering.

The TSZ07 is available in a standard 48.3-cm (19”) rackmount form, in a tabletop version, or top mounted in a 110 cm (43.3”) cabinet which includes an H7600-type power controller and provides 55.9 cm (26”) of cabinet expansion space.

Features

- Recording density 6250 bits/inch (GCR), 1600 bits/inch (phase encoded)
- Formatted capacity @ 6250 bits/inch 140 MB *(2400-foot reel), @ 1600 bits/inch 40 MB (2400-foot reel)
- Read/write speed 2.54 meters/second (100 inches/second maximum)
- Maximum rewind speed 5.1 meters/second (200 inches/second)
- Maximum data transfer rate 625 KB/second
- Maximum SCSI transfer rate 4 MB/second (synchronous)
- Automatic loading and threading
- 8 character alphanumeric front panel display
- 1 MB cache memory
- Front loading with low profile 22.2 cm (8.75-inch) height
- Auto ranging power supply
- Low acoustic noise level
- Single ended and fast narrow differential SCSI

Hardware Support

- KZPAA and KZPSA for PCI based systems
- KZMSA on AlphaServer 8400 with XMI bus
- HSJxx for CI clusters
- HSD05 and HSD10 for DSSI connection
- KZQSA for Q-bus systems
- PMAZC Turbochannel/SCSI controller
- PB2HA EISA/SCSI controller
- AlphaServer 8200 and 8400 with KFTIA controller

Software Support

- HSOF V1.2 or later.
- TSZ07 requires OpenVMS V5.4-1 or higher, DIGITAL UNIX V2.0 or higher. Support for Alpha systems running Windows NT requires V3.5 or V3.51 and layered software QB-4STAA-SA.
- TSB07 requires OpenVMS V5.3 or higher. Note VAX 87xx/88xx requires minimum of OpenVMS V5.4-3.

TSZ07 variants for connection to SCSI external ports and controllers

TSZ07-AA	1600/6250 bit/inch slow, narrow, single-ended SCSI rackmountable 9-track magtape, requires country kit
TSZ07-BA	1600/6250 bit/inch slow, narrow, single-ended SCSI 9-track magtape mounted in H9A11 cabinet, includes 9-foot (2.7 meter) external BC06P-09 SCSI cable, tape drive to power controller ac power cord, and power controller with appropriate ac power cord attached. Some countries may require a country specific ac power plug.
TSZ07-BB	Same as -BA except 240V power controller
TSZ07-CA	1600/6250 bit/inch slow, narrow, single-ended SCSI tabletop 9-track magtape, requires country kit

TSZ07 variants for connection to VAXBI bus

TSB07-AA	Differential SCSI rackmountable magtape; includes VAXBI adapter, 40-inch (1 meter) internal cable, I/O bulkhead with connector, and 25-foot (7.6 meter) BC13N-25 SCSI cable, requires country kit
TSB07-BA	Differential SCSI magtape rackmounted in 40-inch (1 meter) cabinet; includes VAXBI adapter, 40-inch (1 meter) internal cable, I/O bulkhead with connector, and 25-foot (7.6 meter) BC13N-25 SCSI cable, tape drive to power controller ac power cord, and power controller with appropriate ac power cord attached. Some countries may require a country specific ac power plug.
TSB07-BB	Same as -BA except 240V power controller, requires two country specific power cords
TSB07-CA	Differential SCSI tabletop magtape; includes VAXBI adapter, 40-inch (1 meter) internal cable, I/O bulkhead with connector, and 25-foot (7.6 meter) BC13N-25 SCSI cable, requires country kit

TSZ07 Reel to Reel Tape Device *(continued)*

TSZ07-DA	Slow, narrow, differential SCSI rackmountable 9-track magtape, requires country kit
TSZ07-EA	Slow, narrow, differential SCSI 9-track magtape in H9642 cabinet, includes 9-foot (2.7 meter) external BN06P-09 SCSI cable, tape drive to power controller ac power cord, and power controller with appropriate ac power cord attached. Some countries may require a country specific ac power plug.
TSZ07-EB	Same as above except 240V power controller, requires two country specific power cords
TSZ07-FA	Slow, narrow, differential SCSI tabletop 9-track magtape, requires country kit

.. To daisychain more than one TSZ07 on a VAXBI system, order one TSB07 above and one TSZ07 differential SCSI model listed above.

Country kits

.. TSZ07-AA, -CA, -DA, -FA, and TSB07-AA, -CA require a country kit which includes an ac power cord, two 6-foot (1.8 meter) SCSI cables (BC06P-06), hardware documentation, tape head cleaning kit, and 2400-foot (731.5 meter) reel of blank magnetic tape.

TSZK7-AA	U.S., Canada, Mexico
TSZK7-AD	Denmark
TSZK7-AE	U.K., Ireland
TSZK7-AG	Austria, Belgium, Finland, France, Netherlands, Norway, Portugal, Spain, and Sweden
TSZK7-AI	Italy
TSZK7-AJ	Japan
TSZK7-AK	Switzerland
TSZK7-AT	Israel
TSZK7-AZ	Australia, New Zealand
TSZK7-BJ	India

SCSI Cabling

Both the TSZ07 single ended and differential SCSI variants use a 50-pin, low density, bail lock "Champ" SCSI connector.

SW800 Mounting Kits

.. TSZ07-AA and -DA variants can be mounted in StorageWorks SW800 cabinet. Up to two TSZ07 drives can be mounted in cabinet, drives must be mounted in top most positions **only**

TSZ7R-S1	Mounting kit for mounting one TSZ07 magtape in SW800 cabinet. Includes replacement SW800 front door, one drive bezel, inch to metric adapter brackets, and mounting hardware
TSZ7R-S2	Mounting kit for mounting two TSZ07 magtapes in SW800 cabinet. Includes replacement SW800 front door, two drive bezel, inch to metric adapter brackets, and mounting hardware

Specifications

Physical Characteristics	**TSZ07-AA and -DA**	**TSZ07-Bx, -Ex, and TSB07-Bx**	**TSZ07-CA, -FA**
Height	22.8 cm (9.0 inch)	110 cm (43.31 inch)	26.9 cm (10.6 inch)
Width	43.2 cm (17.0 inch)	60 cm (23.62 inch)	50.8 cm (20.0 inch)
Depth	63.5 cm (25.0 inch)	86 cm (33.86 inch)	68.6 cm (27.0 inch)
Weight	30.9 kg (66.0 lb.)	115.9 kg (255 lb.)	43.2 kg (95.0 lb.)

StorageWorks TZK11 Quarter-Inch Cartridge (QIC) Tape Drive

The TZK11 tape drive utilizes the QIC-2 GB format in an quarter-inch cartridge streaming tape drive, available as a 5.25-inch, half-height form factor embedded or standalone tabletop device. The TZK11 supports a variety of capacities and densities depending on the cartridge type used, as illustrated in the following table. The high available capacity and transfer rate make this drive suited to backup as well as data interchange.

Cartridge	System	Capacity	Format	Read	Write
DC9250	DIGITAL UNIX, OpenVMS	Up to 2.5 GB	QIC-2 GB	X	X
DC9000 (Magnus 2.0)	DIGITAL UNIX, OpenVMS	Up to 2.0 GB	QIC-2 GB	X	X
DC9000 (Magnus 1.2)	DIGITAL UNIX, OpenVMS	Up to 1.2 GB	QIC-1 GB	X	X
DC9000 (Magnus 1.0)	DIGITAL UNIX, OpenVMS	Up to 1.0 GB	QIC-1 GB	X	X
DC6525	DIGITAL UNIX, OpenVMS	Up to 525 MB	QIC 525	X	X
DC6320	DIGITAL UNIX, OpenVMS	Up to 320 MB	QIC 320	X	X
DC6150 or DC600XTD	DIGITAL UNIX	Up to 150 MB	QIC 150	X	X
DC6150 or DC600XTD	DIGITAL UNIX	Up to 120 MB	QIC 120	X	X
DC600A	DIGITAL UNIX	Up to 60 MB	QIC 24	X	

Features

- Up to 2.0 Gbytes (formatted) tape capacity
- 300-Kbyte/second transfer rate
- 5.25-inch half-height form factor
- Embedded and tabletop models
- Read/write speed: Variable
- Supported interface: SCSI-2

Software Support

- DIGITAL UNIX, OpenVMS V5.5-2, OpenVMS Alpha V1.5, and SCO UNIX

Ordering Information

One data cartridge and one cleaning cartridge included in all models; also available in the BA353 desktop expansion box.

TZK11-DA	TZK11 tabletop, including 3-ft SCSI cable and terminator
TZK11- HF	TZK11 for MicroVAX 3100 Model 30/40/80/90 systems; field installed
TZK11-LG	TZK11 for AlphaServer 2100, 2000 (068 gray)
TZK11-MF	TZK11 for DEC 3000 Model 400/500/600/800 systems
TZK11-VA	TZK11 for StorageWorks BA356 modular storage shelf
TZK11-VU	TZK11 for StorageWorks BA356 modular storage shelf, second drive

Media and Cleaning Cartridge

TZK1X-CG	Single 2.5 GB QIC media cartridge (DC9250)
TZK1X-CH	5-pack, 2.5 GB QIC media cartridges (DC9250)
TZK1X-CE	Single 2.0 GB QIC media cartridge (DC9200)
TZK1X-CF	5-pack, 2.0 GB QIC media cartridges (DC9200)
TZK1X-CD	5-pack, 525 MB QIC media cartridges (DC6525)
TZK1X-CB	5-pack, 320 MB QIC media cartridges (DC6320)
TZK1X-HA	TZK10/TZK11 cleaning cartridge

Note: DIGITAL branded media is recommended.

Specifications

Physical Characteristics (Embedded)

Height	15.0 cm (5.9 in.)
Width	4.4 cm (1.75 in.)
Depth	21.8 cm (8.6 in.)
Weight	1.1 kg (2.4 lb)

TZK20 QIC Tape Drive

TZK20 QIC Tape Drive is a compact 2.3 GB MiniQIC tape drive that is ideal for backup, data exchange, and archival storage in workstations and file and print servers. Its read-while-write capability checks data accuracy, so no verification pass is needed. Because no verification pass is needed, back up time is cut in half.

TZK20 has a dual-channel head design. The first head reads and verifies data as it streams onto the tape. The second head immediately corrects data errors, eliminating the wear and tear of tape repositioning. TZK20 competes with Digital Audio Tape (DAT) but has a lower initial price.

All TZK20 drives include one year of onsite warranty. An extended warranty is available at the time of purchase. Extended warrantees can be purchased in five-year increments, up to 24 hours a day, seven days a week DECservice.

Features

- Compact 2.3 GB MiniQIC tape drive
- Ideal for backup, data exchange, and archival storage for workstations and small servers
- Read-while-write error detection assures accurate data without a verification pass
- Available in internal and tabletop packaging configurations

Software and Hardware support

- Digital UNIX V3.2C on AlphaStation 400, 600, AlphaServer 400, 1000, DEC 3000 Models 300, 600, 800
- Digital UNIX V3.2D on AlphaStation 200, 250, 255
- OpenVMS Alpha V6.2 on AlphaStation 400, 600, AlphaServer 400, 1000, DEC 4000 Models 600, 700, VAXstation 4000 Models 60, 96
- OpenVMS Alpha V6.2-1H1 on AlphaStation 200, 250, 255, 500
- OpenVMS VAX V6.2 on VAXstation 4000 Models 60, 96, 96/VLC, VAX 4000 Models 106A, 505A, 705A, MicroVAX 3100 Models 30/80/90, 85/96, 40, DEC 3000 Models 300L, 300X, 300LX, 600, 800

Note: TZK20 does not support booting of OpenVMS standalone backup on MicroVAX 3100 Model 40 and VAXstation 4000 Model 60 systems. TZK20 internal drive replaces the CD-ROM on AlphaStation 200 and 250 systems. The TZK20 is not supported on the same bus as a controller on AlphaStation 500 systems.

Adaptor support

- DWZZA signal converter (8 bit differential to single-ended SCSI)
- KZPAA (PCI based SCSI adapter)

Ordering Information

Internal Drives

One blank tape, a cleaning cartridge, and documentation are included with each drive.

TZK20-HF	TZK20 5.25-inch, 2.3 GB, 300 KB-per-second SCSI QIC Tape Drive with Mounting Kit

Tabletop Drives

One blank tape, a cleaning cartridge, documentation, cables and power cords are included with each drive.

TZK20-DB	TZK20 Tape Drive for 50 pin High Density Host SCSI Adaptor
TZK20-DC	TZK20 Tape Drive for 68 pin High Density Host SCSI Adaptor
TZK20-DD	TZK20 Tape Drive for 50 pin High Density Host SCSI Adaptor

Media

TZK2X-CD	5 QIC-wide Data Cartridges, 425-feet, 2.3 GB, 1800 Oe, QIC-3210-MC format
TZK2X-HA	1 Unit QIC-wide Cleaning Cartridge

TZK20 QIC Tape Drive

Specifications

Capacity (formatted)	2.3 GB (425 foot tape)
Buffer size	256 KB
Interface	SCSI, SCSI-2
Transfer rate	Asynchronous Data Transfer -- 300 KB per second sustained, 18 MB per minute sustained
Burst transfer rate	Asynchronous -- 3 MB per second (maximum)
Recording block length	Variable or fixed
Average access time	54 seconds (425 foot tape)
Search speed	47.2 inches per second
Uncorrected error rate	Less than 1 in 10^{15} bits
Error correction	Read-While-Write, Reed-Solomon Level Two
MTBF	200,000 Power-on hours Head life -- 50,000 hours at 10 percent duty cycle Greater then 15,000 load/eject cycles
Mean time to Repair	Less than 30 minutes
Operating temperature	50 F (10 C) to 104 F (40 C)
Operating humidity	20 percent to 80 percent (non-condensing) 26 C maximum wet bulb temperature
Altitude	Up to 13,000 feet (4 KM) operating Up to 30,000 feet (13 KM) non-operating
Power consumption	12.1 watts operating, 3.5 watts standby 100 VAC-240 VAC, autosensing power supply
Regulatory conformance - Safety - EMI/RFI	UL1950, CSA 22.2 950, IEC 950 (EN 60950), GS mark FCC class B, VDE 0875 Class B, CISPR Class B, EN55022, EN50082-1, CE mark, VCCI mark
Physical Characteristics	
Height	3.5-inch internal -- 1.62 inches (4.1 centimeters) 5.25-inch internal -- 1.73 inches (4.3 centimeters) Tabletop -- 2 inches (5.1 centimeters)
Width	3.5-inch internal -- 4 inches (4.1 centimeters) 5.25-inch internal -- 5.91 inches (15 centimeters) Tabletop -- 6.25 inches (16 centimeters)
Depth	3.5-inch internal -- 5.9 inches (15 centimeters 5.25-inch internal -- 6 inches (15.3 centimeters) Tabletop -- 12 inches (30.7 centimeters)
Weight	3.5-inch internal -- 1.5 pounds (0.7 kilograms) 5.25-inch internal -- 1.5 pounds (0.7 kilograms) Tabletop -- 5.2 pounds (2.4 kilograms)

FLEXIBLE/OPTICAL MEDIA SPECIFICATIONS CHART

									Environmental Conditions		
Option #	Media Type	Capacity MB (Note 1)	Tape Length (Note 2)	Form Factor (Note 3)	Shelf Life (Note 4)	Coercivity (Oe) (Note 5)	Durability (Passes) (Note 6)	Type Mat. (Note 7)	Storage (Note 8)	Archival (Note 9)	Operating (Note 10)
RX02K-10	SDSS	0.512	N/A	8	20*	300	3,500,000	GFO	10-51/8-80		10-51/8-80
RX33K-10	HDDS	1.2	N/A	5.25	20*	650	4,000,000	CGFO	10-51/8-80		10-51/8-80
RX50K-10	HDDS	0.409	N/A	5.25	20*	300	3,000,000	GFO	10-51/8-80		10-51/8-80
RX23K-FM	HDDS	1.44	N/A	3.5	20*	725	4,000,000	CGFO	4-53/8-90		10-60/8-80
RV6XP-AA	WORM	6552	N/A	12	100	N/A	100,000	SSBT	-20-60/5-90		5-50/5-80
RWX1K-01	M/O	594	N/A	5.25	30*	N/A	40,000	TIC	-10-55/10-90	-10-55/10-90*	5-55/10-80
RWX5K-01	M/O	1200	N/A	5.25	30*	N/A	40,000	TIC	-10-55/10-90	-10-55/10-90*	5-55/10-80
RWX5K-02	WORM	1200	N/A	5.25	30*	N/A	40,000	TIC	-10-55/10-90	-10-55/10-90*	5-55/10-80
RWX6K-01	M/O	2300	N/A	5.25	30*	N/A	100,000	TbFeCo	-10-55/3-90	-10-55/3-90*	5-55/3-85
RWX6K-02	WORM	2300	N/A	5.25	30*	N/A	100,000	TbFeCo	-10-55/3-90	-10-55/3-90*	5-55/3-85
RWX6K-03	M/O	2600	N/A	5.25	30*	N/A	100,000	TbFeCo	-10-55/3-90	-10-55/3-90*	5-55/3-85
RWX6K-04	WORM	2600	N/A	5.25	30*	N/A	100,000	TbFeCo	-10-55/3-90	-10-55/3-90*	5-55/3-85
TUN24-SL	REEL	145	2400	10.25	20*	350	40,000	GFO	5-48/20-80	5-32/20-80	16-32/20-80
TUN24-AL	REEL	145	2400	10.25	20*	350	40,000	GFO	5-48/20-80	5-32/20-80	16-32/20-80
TU58-K	DC100A	0.262	140	3.5	5	310	5,000	CGFO	-40-45/20-80	-40-45/20-80	5-45/20-80
TK25-K	DC600A	60	600	5.25	10*	310	5,000	CGFO	-40-45/20-80	-40-45/20-80	5-45/20-80
TZK2X-CB	DC2120	120	307.5	3.5	10*	550	5,000	CGFO	-40-45/20-80	-40-45/20-80	5-45/20-80
TZK2X-CD	QIC-WIDE	2300	420	3.5	10*	1800	5,000	MP++	-5-45/20-80	15-45/30-70	5-57/20-80
PC4XT-BA	DC6150	150	620	5.25	10*	550	5,000	CGFO	-40-45/20-80	-40-45/20-80	5-45/20-80
TZK1X-CB	DC6320	320	620	5.25	10*	550	5, 000	CGFO	-40-45/20-80	-40-45/20-80	5-45/20-80
TZK1X-CD	DC6525	525	1020	5.25	10*	550	5,000	CGFO	-40-45/20-80	-40-45/20-80	5-45/20-80
TZK1X-CH	DC9250	2500	1200	5.25	10*	900	5,000	CGFO	-5-45/10-80	-5-45/20-80	5-57/20-80
TLZ04-CB	DAT-60M	1300	196.9	2.9	10	1540	2,000	MP	5-32/20-60		5-45/20-80
TLZ06-CB	DAT-90M	2000	295.3	2.9	10	1540	2,000	MP	5-32/20-60		5-45/20-80
TLZ07-CB	DAT-120M	4000	393.7	2.9	10	1700	2,000	MP+	5-32/20-60		5-45/20-80
TKZ8X-CB	8 mm	5000	367.5	3.7	30*	1540	1,500	MP	5-32/40-60		5-45/20-80
TKZ6K-30	3490E	800	1100	4.3	15*	520	40,000	CD	5-32/5-80		16-32/20-80
TKZ9K-30	3590E	10000	1100	4.3	20*	1600	40,000	MP	4-32/5-80		15-32/20-80
TA90K-30	3480	200	541	4.3	15*	520	40,000	CD	5-32/5-80		16-32/20-80
TK50-K	CT-I	95	600	4.2	20*	350	20,000	GFO	5-45/20-80	5-45/20-80	10-40/20-80
TK52-K	CT-II	296	600	4.2	20*	350	20,000	GFO	5-45/20-80	5-45/20-80	10-40/20-80
TK85K-01	CT-III	10,000	1167	4.2	20*	1540	500,000	MP	16-32/20-80	18-28/40-60	10-40/20-80
THXKD-01	CT-IV	20,000	1765	4.2	30*	1850	500,000	MP+	16-32/20-80	18-28/40-60	10-40/20-80
THXKE-02	CT-IIIxt	15,000	1765	4.2	20*	1540	500,000	MP	16-32/20-80	18-28/40-60	10-40/20-80

* Data in all items above denoted with "*" indicate information obtained from sources other than Digital Equipment Corporation, American National Standards Institute, or manufacturer's specifications. Information is intended for general reference only and is subject to change without notice. Digital Equipment Corporation assumes no responsibility for any errors that may appear in this document.

Notes:

1 Maximum formatted capacity per unit in highest density qualified DIGITAL drive application without compression.
2 Minimum length of recording area in feet.
3 Diameter, width or other commonly referenced form factor dimension in inches, as applicable for device type.
4 Minimum in years, provided item is stored as recommended in product documentation. Stated as "pre-recorded/post recorded (archival)" where distinction is made.
5 Nominal value as measured in oersteds.
6 Minimum number of passes—parameter is variously defined within the industry and may not be comparable between product types. Some general definitions are as follows:
(1) for diskettes - wear resistance in number of revolutions as defined in product-specific documentation.
(2) for optical devices - load/unload, spin/up down cycles.
(3) for tape products - number of tape-head or test passes as defined in product-specific documentation.
7 Magnetic recording material, where: GFO = gamma ferric oxide, MP = metal particulate, CD = chromium dioxide, BF = barium ferrite,
CGFO = cobalt-doped gamma ferric oxide, TA = tellurium alloy, TIC = magnetic alloy of terbium, iron and cobalt,
SSBT = alloy of antimony, selenium, bismuth, tellurium.
8 Maximum temperature/humidity range in C/%RH, non-condensing.
9 Maximum temperature/humidity range in C/%RH, non-condensing; if field is blank, refer to "storage" figures.
10 Maximum temperature/humidity range in C/%RH, non-condensing.
11 Note: RX23K-FM floppies are DOS preformatted.